

IN THE SUPREME COURT  
OF FLORIDA

OSCAR RAY BOLIN  
Appellant,

vs.

CASE NO.: SC95775

STATE OF FLORIDA,  
Appellee.

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**BRIEF OF AMICUS CURIAE,**  
**FLORIDA ASSOCIATION OF CRIMINAL DEFENSE LAWYERS**  
**(FACDL), IN SUPPORT OF APPELLANT**

On Appeal from the Circuit Court for the  
Thirteenth Judicial Circuit, Hillsborough County  
Appeal From Judgment and Sentence Imposing Death Penalty

James T. Miller

On Behalf of the Florida Association of  
Criminal Defense Lawyers (FACDL)  
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## **PRELIMINARY STATEMENT**

The Florida Association of Criminal Defense Lawyers (FACDL) is a statewide organization of over 1,200 criminal defense lawyers. One of the founding purposes of FACDL is to promote the fair and reasonable administration of justice. FACDL's interest in this case is the issue of the admissibility of Mitochondrial DNA (mtDNA). Any decision on the admissibility of mtDNA will effect justice throughout Florida. FACDL wants to help this Court reach the correct decision in this case because this case may establish an important precedent on mtDNA evidence.

FACDL will adopt the record designations used by Appellant.

**CERTIFICATION OF TYPE SIZE AND FONT**

Appellant certifies the type size and font used in this brief is Courier 12.

## **STATEMENT OF THE CASE AND FACTS**

FACDL adopts the statement of the case and facts in the initial brief of Appellant as to the issue of the admissibility of the mtDNA evidence.

## SUMMARY OF ARGUMENT

The trial court erred in permitting the mtDNA evidence because the analytical techniques used by the FBI are not generally accepted in the general scientific community. The underlying theoretical principles underlying mtDNA are also in question. Therefore, mtDNA should not be admissible at this time under Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). FACDL suggests that the systemic problem with DNA cases in this state is that trial courts accept forensic applications of generally accepted scientific principles before the general scientific community tests and accepts such applications.

The Frye test is, by definition, a conservative test. Courts should not accept scientific evidence until the general scientific community tests any underlying principles/theories and any techniques/applications of those principles. The Frye test ensures both good science and jurisprudence. If a court too hastily, as in this case, accepts a new technique, then there could be a reversal of an otherwise valid conviction because of a subsequent disapproval of the new forensic application.

A trial court under Frye should not select one view of science over another view. In this case, there was a disagreement over the basic scientific principles/application of mtDNA evidence. This disagreement established there is not

yet a consensus and general acceptance of the analytical techniques used in this case. Science and not a court should ultimately decide on which view of scientific principle/application will prevail.

## I.

### **THE TRIAL COURT ERRED IN RULING THAT MITOCHONDRIAL DNA EVIDENCE SATISFIES THE FRYE STANDARD FOR ADMISSIBILITY AND PERMITTING THE STATE TO INTRODUCE STATISTICAL PROBABILITIES BASED UPON MITOCHONDRIAL DNA.**

A. The issue in this case: The approval of new scientific principles/applications should occur in scientific laboratories and not in the courts pursuant to forensic applications.

FACDL will not merely repeat the arguments of Appellant as to the issue above. Appellant has extensively covered the basic principles of a Frye v. United States, 293 F. 1013 (D.C. Cir. 1923) hearing as applied to this case. FACDL will address the systemic problem of how trial courts decide the issue of new scientific principles/applications pursuant to the Frye test in a forensic application. The jurisprudential issue in this cause is how a trial court should evaluate a new scientific principle/application in a forensic application pursuant to Frye, when there may not be general acceptance of the application in the rest of the scientific community.

The trial court in this case accepted the mtDNA evidence based upon FBI testing techniques and population data. John Stewart, forensic examiner for the FBI laboratory, admitted 1) other members of the scientific community outside the FBI believed mtDNA testing was in its infancy; 2) knowledge of the essential genetic features of mtDNA was scanty; 3) mtDNA is the newest form of DNA testing and is the least sensitive and the least able to make differentiations. (V.12. 970,972,982)

The decision of the trial court and Stewart's testimony define the issue outlined above: Should a trial court accept, under Frye, a new scientific application when there are questions about whether the general scientific community, outside the forensic community, has accepted the application? FACDL understands that this court has generally accepted the scientific principles of DNA testing of nuclear DNA. See Brim v. State, 695 So.2d 268 (Fla. 1997); Murray v. State, 692 So.2d 157 (Fla. 1997). In this case, the trial court accepted, pursuant to Frye, a new application of the general DNA testing principle to a different type of DNA - Mitochondrial DNA. The record in this case establishes the analytical differences between nuclear DNA and Mitochondrial DNA. The ultimate question in this case is whether the application of the accepted general principles for nuclear DNA apply to mtDNA. The trial court below relied upon evidence only from the forensic community as to the testing techniques/population data.

FACDL suggests that the systemic, jurisprudential issue in this case is the acceptance of a new technique/application when the only evidence of the validity of the technique/application comes from the forensic community. As evidenced by the record in this cause, part of the forensic community (the FBI) believes its techniques/population data are scientifically valid. The record below also establishes the lack of consensus, in the general scientific community, for the FBI applications. A collateral issue is whether the trial court can simply decide that it believes one expert over another and will accept the judgment of one expert over another even though the totality of the expert opinions suggests a lack of consensus.

FACDL does not suggest that mtDNA analysis, in some form, may not eventually become generally accepted in the scientific community so as to have a forensic application. However, the evaluation of analytical techniques for mtDNA should occur in scientific laboratories (in a variety of settings and not just in a forensic laboratory) over a period of time; a trial court should not accept a new application of general scientific principles just because a forensic laboratory has developed a new forensic application. By definition, the Frye test is a conservative test; courts should not accept new scientific evidence until the general scientific community has accepted the new scientific application. The advantage of the Frye test is that courts should wait until the scientific community tests and re-tests a particular technique until science

corrects any possible theoretical or application errors. By definition, science is the ever-changing experimentation and testing of hypotheses. Courts should not too readily accept “cutting edge” new techniques merely because a forensic community wants to apply the technique to solve a criminal case. From a judicial efficiency view point, courts should not hastily accept new techniques (not yet generally accepted), because if the courts or science later find the techniques to be invalid, appellate courts will have to reverse, perhaps otherwise valid, convictions.

B. The improper application of the Frye test in this case.

1. The lack of general acceptance of the forensic application used in this case.

Based upon the definition of the issue discussed above, the trial court failed to use the test enunciated in Murray v. State, supra. The trial court improperly found there was general acceptance of the principles of mtDNA analysis in the relevant scientific community. The relevant scientific community is not merely the forensic scientific community. FACDL does not doubt that the FBI attempts to apply valid scientific principles. However, as noted in the record below, several of the underlying principles relied upon by the FBI are 1) in dispute; 2) not generally accepted in the rest

of the scientific community. The error of the trial court was the failure to accept the possible lack of consensus outside the forensic community.

A trial court, pursuant to the Frye test, should have the duty to review the general acceptance of a given technique/application, even if the defense does not present such evidence. The Murray opinion imposes such a duty of review. In this case, the state witnesses testified the techniques used by the FBI had general acceptance - yet the same witnesses also testified that members of the rest of the scientific community believe mtDNA testing was in its infancy and knowledge of the essential genetic features of mtDNA was scant; there was evidence of high degrees of mutation in mtDNA.

Dr. Shields testified for the Defense that there were problems with contamination; the contamination ratio used by the FBI was not generally accepted. Dr. Shields also discredited the population genetic frequency data used by the FBI. The state witness, Stewart, was not an expert in statistics.

The dispute between Stewart and Shields demonstrates the misapplication of the Frye test by the trial court. Under the Frye - Murray test, a trial court may not simply decide that it accepts one view of scientific evidence over another view. The acceptance of one scientific view over another view is the province of science, not the courts. The Frye test requires the general scientific community, not a trial court to

accept a particular application of scientific theories/hypotheses. The Stewart-Shields dispute in this case demonstrates a lack of general acceptance.

This court should again remind trial courts that they must perform a critical general acceptance analysis under Frye. A trial court may not simply believe one view of scientific application over another. If there is disagreement over which technique is valid, then there is no general acceptance and such evidence is inadmissible under Frye. FACDL submits this view is sound science and jurisprudence. If a court accepts one view of a scientific application before general acceptance, then there is the possibility the general scientific community will later reject the application. This court or another appellate court could later reverse the ruling by the trial court due to the rejection of the application by the general scientific community. As FACDL argued above, the Frye - Murray test is a conservative test which allows the scientific community to develop and test new principles/applications to a accepted theory - this process allows the testing of all relevant principles, theories, and assumptions and to refine particular applications of the principles and theories.

2. Decisions from other courts on mtDNA.

Some state courts have approved the use of mtDNA analysis in a forensic application. The North Carolina Court of Appeals in State v. Underwood, 518 SE 2d 231 (N.C. Ct. App. 1999) upheld mtDNA evidence. North Carolina does not use the

Frye test; North Carolina uses a test similar to the test in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed 2d 469 (1993). The North Carolina Court decided that mtDNA analysis was scientifically reliable; North Carolina Courts specifically permit acceptance of a scientific evidence if there is testimony from scientific experts on the matter.

State v. Underwood, *supra*, is not a persuasive authority for this court because North Carolina does not use the Frye test. Underwood should also not be a persuasive authority because it does not address the question of what does a court do when scientific experts disagree on the reliability of a particular scientific principle or application. The North Carolina test also does not adequately address the question of whether the general scientific community has accepted the techniques used by the forensic community.

The South Carolina Supreme Court in Council v. State, 515 S.E. 2d 508 (SC. 1999) also upheld the use of mtDNA evidence. Like North Carolina, South Carolina does not use the Frye test. South Carolina has not adopted the Daubert test - South Carolina has its own statutory test. For the reasons argued above as to Underwood, Council should not be persuasive authority for this case.

The court in Council noted that the mtDNA technology in that case had been subject to peer review and the FBI laboratory had validated the process. These

findings do not address the issue of whether these techniques have the acceptance of the scientific community outside the forensic community. General acceptance of the underlying scientific principles does not mean a particular forensic application will necessarily be scientifically reliable. The Council court erroneously assumed that because the general scientific principles underlying mtDNA have general acceptance, the forensic application of them would also be valid.

In the initial brief, Appellant noted there is no general acceptance of some of the underlying general principles of mtDNA. There are significant questions about 1) contamination; 2) whether mtDNA is inherited solely from the mother; 3) heteroplasmy. Consequently, the underlying assumptions of Council and Underwood may be incorrect - the underlying principles and theory of mtDNA are scientifically valid and generally accepted. Therefore, Council and Underwood are not persuasive authorities for this cause.

The Tennessee Court of Appeals in State v. Ware, 1999 Tenn. Crim. App. Lexis 370 (April 20, 1999) upheld the use of mtDNA because a Tennessee statute permitted the use of DNA evidence. The Ware decision did not conduct a Frye analysis. The Ware court also erroneously decided nuclear DNA is analytical techniques (including the use of population statistics) are the same for mtDNA analysis. See also State v. Scott, 1999 Tenn. Crim. App. Lexis 758 (Tenn. Ct.

Appeals, July 28, 1999) (Under Tennessee law no need for hearing to determine admissibility of any DNA evidence.)

In State v. Smith, 2000 Wash. App. Lexis 795 (Wash. Ct. Appeals, May 26, 2000) the Washington Court of Appeals (Washington uses the Frye test) found that any error in the admission of mtDNA evidence was harmless. Although the State v. Smith court did not specifically reject mtDNA evidence it did not find it acceptable under Frye.

## **CONCLUSION**

This Court should decide the trial Court should not have admitted the mtDNA evidence. This Court should also reaffirm the Frye test as enunciated in Brim and Murray; this Court should once again instruct trial courts on how to apply properly the Frye test to new forensic applications.

Respectfully submitted,

James T. Miller

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## **CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished U.S. Mail this 13<sup>th</sup> day of September 2000, to: Candance Sabella, Department of Legal Affairs, Tampa Office, 2002 N Lois Avenue, Ste. 700, Tampa,

Florida 33607-2391 and Andrea Norgard, Public Defender, P.O. Box 9000, Drawer  
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Attorney

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